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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,118	10/17/2003	Kenneth Douglas Vinson	9066M2	9231

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EXAMINER

CORDRAY, DENNIS R

ART UNIT	PAPER NUMBER
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1791

MAIL DATE	DELIVERY MODE
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01/03/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/688,118

Applicant(s)

VINSON, KENNETH DOUGLAS

Examiner

Dennis Cordray

Art Unit

1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-14 is/are rejected.
- 7) ☒ Claim(s) 1,2 and 4-14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submissions filed on 9/21/2007 and 10/19/2007 have been entered.

Claim Objections

It is noted that Claim 4 has been amended but fails to carry the proper identifier (Currently amended). It is further noted that the complete listing of claims fails to commence on a separate page. Furthermore, the sheets that contain the claims also contain other portions of the amendment. (see MPEP 714, 37 CFR 1.121(c) and (c)(1), listed below).

(c) *Claims*. Amendments to a claim must be made by rewriting the entire claim with all changes (e.g., additions and deletions) as indicated in this subsection, except when the claim is being canceled. Each amendment document that includes a change to an existing claim, cancellation of an existing claim or addition of a new claim, must include a complete listing of all claims ever presented, including the text of all pending and withdrawn claims, in the application. The claim listing, including the text of the claims, in the amendment document will serve to replace all prior versions of the claims, in the application. In the claim listing, the status of every

claim must be indicated after its claim number by using one of the following identifiers in a parenthetical expression: (Original), (Currently amended), (Canceled), (Withdrawn), (Previously presented), (New), and (Not entered). (1) Claim listing. All of the claims presented in a claim listing shall be presented in ascending numerical order. Consecutive claims having the same status of "canceled " or "not entered " may be aggregated into one statement (e.g., Claims 1 –5 (canceled)). The claim listing shall commence on a separate sheet of the amendment document and the sheet(s) that contain the text of any part of the claims shall not contain any other part of the amendment.

(1) Claim listing. All of the claims presented in a claim listing shall be presented in ascending numerical order. Consecutive claims having the same status of "canceled " or "not entered " may be aggregated into one statement (e.g., Claims 1 –5 (canceled)). The claim listing shall commence on a separate sheet of the amendment document and the sheet(s) that contain the text of any part of the claims shall not contain any other part of the amendment.

In order to further prosecution, the amendment is acted upon by the Examiner as currently submitted. However, in all future submissions, Applicant is requested to provide a complete claim listing in accordance with 37 CFR 1.121(c) and (c)(1), with correct identifiers, commencing on a separate sheet, and the sheets containing the claim text having no other parts of the amendment.

Response to Arguments

Applicant's arguments, filed 9/21/2007 and 10/19/2007, with respect to the rejections of Claims 1,4,6 and 14 under 35 U.S.C. 112, first paragraph have been fully considered and are persuasive. Accordingly, the rejection has been withdrawn.

Applicant's arguments with respect to the rejections of claims over prior art have been fully considered but they are not persuasive.

Applicant argues that the differences between the claimed invention and the prior art are well beyond the scope and content of the prior art. In particular, Applicant argues that the range disclosed in Barnholtz et al for the high molecular weight polymer of 0.01% to 2% is outside of the currently claimed range of 0.0005% to 0.005%. Applicant further argues that one of ordinary skill in the art would not have been motivated to use the claimed range and would not have expected the claimed range to provide the benefits of increased sprayability.

The currently claimed range for the high molecular weight polymer is "from about 0.0005% to about 0.005%." As discussed in the previous Final Action dated 8/22/2007, the currently claimed range, while encompassed or overlaid by several ranges listed in the instant Specification (p 15, lines 4-13), lies outside of the most preferred range of "about 0.005% to about 0.01%." Furthermore, the only example presented to demonstrate the invention comprises a high molecular weight polymer in the amount of 0.02% or 0.008%, depending on the interpretation of the composition as presented. Neither of the possible values in the example lies within the claimed range, and there is no mention of the sprayability of the exemplary composition or of any unexpected

properties thereof over any other composition. Thus, there is no evidentiary support that the claimed range provides unexpected advantages over compositions of the prior art.

The broadest range disclosed in the instant Specification is "typically ...from about 0.0005% to about 0.5%" and the claimed range represents approximately the lowermost 1% of the broader range. The meaning of the word "about" is undefined in the current application, and it is the Examiner's contention that the range of "about 0.0005% to about 0.005%" can reasonably be interpreted to include any minimum amount of polymer up to values significantly greater than 0.005%.

Turning to Barnholtz et al, the most broadly disclosed range is "typically ... from "about 0.01% to about 5%" (p 33, lines 19-20). While the definition of "about" is also absent, the Examiner considers the lower limit of about 0.01% to include amounts significantly lower than 0.01% and one of ordinary skill in the art would easily have envisioned values of 0.005%, and even lower values, as being within the range of "about 0.01%. to about 5%." The extension from 0.01% to 0.005% is only 1/1000th of the total range.

The rejections are maintained.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-2 and 4-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barnholtz et al (WO 02/48458) in view of Anderson (3624019) and evidenced by

The Mini-Encyclopedia of Papermaking Wet Chemistry (topic: polyethylene imine (PEI), <http://www4.ncsu.edu/~hubbe/PEI.htm>), Pelletier et al ("Effect of Retention/Drainage Aids on Formation", BASF Corporation report) and Branning (6485651)

Barnholtz et al discloses an aqueous composition for softening an absorbent tissue (Abstract) comprising:

- A quaternary ammonium softening active ingredient (p 15, lines 24-25) that comprises at least 35% of the composition (p 53; claim 7);
- An electrolyte that can be present in an amount up to 25% of the composition (p 21, lines 14-15);
- A vehicle in which the softening active ingredient is dispersed, which vehicle can be water (p 20, lines 15, 23-24);
- Optionally, a plasticizer in an amount between 5% and 75% of the composition (col 19, lines 14-17);
- Optionally, a bilayer disruptor in an amount between 2% and 15% of the level of active ingredient (col 22, lines 27-28) ;
- A high molecular weight polymer, present in an amount between about 0.01% and about 5% of the composition (p 33, lines 16-20), and that modifies the rheology of the aqueous composition (p 30, lines 10-12). Suitable high molecular weight polymers include polyethyleneimine, which is known in the art to be a branched, high-charge-density cationic monomer (having amine-containing pendant groups that supply cationic charges) (Mini-Encyclopedia of Papermaking Wet Chemistry, topic: polyethylene imine). Pelletier et al teaches that pure PEI

has a charge density of 20 meq/g (p 2, Fig 5), thus cationic polymers containing pendant groups having the claimed charge density are implicitly disclosed by Barnholtz et al. The cationic polymers will deliver the claimed charge density to the composition or, at least, the claimed charge density would have been obvious to one of ordinary skill in the art at the time of the invention.

Softening agents can also include waxes, mineral oil, silicone oil, petrolatum, quaternary ammonium compounds with long alkyl chains, fatty acids, fatty alcohols and fatty esters, many of which would form oil-in-water emulsions (p 3, lines 6-13). The particularly preferred softening active ingredient is a mono or diester quaternary ammonium compound (p 16, line 24 to p 17, line 5) having the formula



wherein Y is -O-(O)C-, or -C(O)-O-, or -C(O)-O-, or -NH-C(O)-, or -C(O)-NH-;

m is 1 to 3 (mono-, di- or tri-ester);

n is 0 to 4;

each R₁ is a C₁-C₆ alkyl or alkenyl group, hydroxyalkyl group, hydrocarbyl or substituted hydrocarbyl group, alkoxylated group, benzyl group, or mixtures thereof;

each R₃ is a C₁₃-C₂₁ alkyl or alkenyl group, hydroxyalkyl group, hydrocarbyl or substituted hydrocarbyl group, alkoxylated group, benzyl group, or mixtures thereof; and X⁻ is any softener-compatible anion.

Barnholtz et al discloses tissue paper (inherently one or more plies) made using the composition that contains approximately 47% water (which borders on and can overlap the claimed amount of less than about 45% water) (pp 39-42, Example 1).

Barnholtz et al does not disclose adding the high molecular weight polymer via a water-in-oil emulsion containing the high molecular weight polymer. Barnholtz et al also does not explicitly disclose the claimed range for the high molecular weight polymer.

Anderson et al discloses a method for adding a high molecular weight polymer to a continuous aqueous phase as a water-in-oil emulsion (col 1, lines 33-42, col 2, lines 12-13). The emulsion can comprise 2-75% by weight of the polymer to be commercially practical (col 3, lines 36-40). The oil to water ratio in the emulsion be from 5:1 to 1:10 as a general rule (col 2, lines 65-67). Thus the water can be present in an amount from 9% to 89% of the emulsion and the oil can be present in an amount from 9% to 81% of the emulsion. The compositional range encompasses the claimed range. Anderson teaches that inversion of the water-in-oil emulsion in water causes the high molecular weight polymer to be rapidly dispersed into the water and overcomes the problem of needing lengthy agitation times to obtain complete dissolution of the polymer (col 1, lines 16-35). Anderson also teaches that the polymers exhibit superior thickening properties in aqueous solutions (i.e.-are rheology modifiers) and are used in papermaking processes (col 1, lines 4-9).

Anderson et al teaches that cationic, anionic or nonionic high molecular weight polymers can be rapidly dissolved into aqueous solution using a water-in-oil emulsion (col 2, lines 1-11) and that the invention is capable of rapidly providing aqueous dispersions having concentrations of 0.1 to 20% by weight of water soluble polymers, which significantly overlaps the claimed range (col 2, lines 27-30).

Anderson does not disclose the claimed range for the high molecular weight polymer.

It was known to those of ordinary skill in the art as a conventional practice, after inverting a polymer-containing water-in-oil emulsion into an aqueous solution, to further dilute the resulting solution for process use (if evidence is needed, see Branning, col 4, lines 34-46).

The art of Barnholtz et al, Anderson et al and the instant invention are analogous in that they pertain to aqueous solutions containing dispersed polymers used in papermaking processes and the problem of efficiently obtaining dissolution of a high molecular weight polymer into an aqueous solution.

It would have been obvious to one of ordinary skill in the art at the time of the invention to invert a water-in-oil emulsion having the claimed composition to add the high molecular weight polymer to the softening composition of Barnholtz et al in view of Anderson et al in order to rapidly disperse the high molecular weight polymer in the aqueous solution. With regard to the claimed range for the high molecular weight polymer, note that the claimed upper limit is "about 0.005% by weight." The range

disclosed by Barnholz et al is typically from "about 0.01 to about 5 wt%" (p 33, lines 19-20), the lower limit of which the Examiner believes is not significantly different from the claimed upper limit or, at least, obtaining a value within the claimed range would have been obvious to one of ordinary skill in the art absent evidence of unexpected results. The teachings of Branning would have been known to one of ordinary skill in the art at the time of the invention and he or she would have found it obvious to practice the inversion in the conventional manner and then to adjust the concentration in the inverted emulsion to the desired value.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Cordray whose telephone number is 571-272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number:
10/688,118
Art Unit: 1791

Page 11

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DRC
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